WHAT IS CLAIMED IS:

1. A method of forming a haze-free BST film over a substrate assembly, comprising:

supplying BST sources into a chamber; and

inducing textured growth of the BST film over the substrate assembly in a substantially uniform desired crystal orientation.

2. The method of Claim 1, wherein inducing textured growth of the BST film includes depositing the film at a rate of less than about 80 Å/min.

3. The method of Claim 1, further comprising heating the chamber to a temperature above about 580°C while inducing growth of the BST film.

4. The method of Claim 1, wherein the BST film is grown using metal-organic chemical vapor deposition (MOCVD).

5. The method of Claim 1, wherein the resulting BST film has a titanium concentration of about 50 to 53.5 atomic percent.

6. The method of Claim 5, wherein the resulting BST film has a titanium concentration of about 52 to 53 atomic percent.

7. The method of Claim 1, wherein the BST film is grown in a substantially uniform {100} orientation.

8. The method of Claim 1, wherein inducing textured growth of the BST film in a substantially uniform orientation comprises:

forming a layer having the desired crystal orientation over the substrate assembly; and

depositing the BST film in the desired crystal orientation over the layer.

9. The method of Claim 8, wherein the layer having the desired orientation is made of a material selected from the group consisting of Pt, Ru, RuO_x, Ir, IrO_x, Pt-Rh, Pd and Mo.

10. The method of Claim 8, wherein inducing textured growth of the BST film in a substantially uniform orientation further comprises forming a nucleation layer over the substrate assembly, wherein the layer having the desired orientation is formed over the nucleation layer.

11. The method of Claim 10, wherein the nucleation layer comprises NiO.

12. The method of Claim 11, wherein forming the nucleation layer of NiO induces a substantially uniform {100} orientation in the layer having the desired orientation.

13. The method of Claim 1, wherein inducing textured growth of the BST film in a substantially uniform desired crystal orientation comprises:

forming a nucleation layer over the substrate assembly; and

depositing the BST film over the nucleation layer.

14. The method of Claim ~~13,~~ wherein the nucleation layer comprises a material selected from the group consisting of Ti, Mn and Nb.

15. A method for forming a substantially haze-free BST film, comprising:

supplying BST sources into a chamber;

heating the chamber to a temperature above about 580°C; and

depositing the BST film at a rate of less than about 80Å/min.

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16. A substantially haze-free BST ~~thin~~ film having a textured structure with a substantially uniform crystal orientation.

17. The BST ~~thin~~ film of Claim 16, having a substantially uniform {100} orientation.

18. A method of forming a substantially haze-free BST film over a substrate assembly, comprising:

forming a nucleation layer over the substrate assembly; and

forming a BST film over the nucleation layer, the BST film being formed having a substantially uniform crystal orientation.

19. The method of Claim 18, further comprising forming an orientation layer over the nucleation layer before forming the BST film.

20. The method of Claim 19, wherein the orientation layer has a desired orientation to induce the same orientation in the subsequently formed BST film.

21. The method of Claim 19. wherein the orientation layer is selected from a group of materials consisting of Pt, Ru, RuO_x, Ir, IrO_x, Pt-Rh, Pd and Mo.

22. The method of Claim 19, wherein the nucleation layer comprises NiO.

23. The method of Claim 22, wherein the NiO layer induces a {100} orientation in the subsequently formed orientation layer.

24. The method of Claim 18, wherein the nucleation layer compensates for defects in the BST film.

25. The method of Claim 24, wherein the nucleation layer comprises a material selected from the group consisting of Ti, Nb and Mn.

26. The method of Claim 18, wherein the BST film is formed by metal-organic chemical vapor deposition (MOCVD).

27. The method of Claim 18, wherein the BST film is formed at a temperature greater than about 580°C.

28. The method of Claim 18, wherein the BST film is deposited at a rate of less than about 80 Å/min.

29. A thin film structure, comprising:

a nucleation layer; and

a BST film over the nucleation layer having a substantially uniform crystal orientation.

30. The thin film structure of Claim 29, wherein the nucleation layer comprises NiO.

31. The thin film structure of Claim 29, further comprising an orientation layer over the nucleation layer underneath the BST film to induce a desired orientation in the BST film.

32. The thin film structure of Claim 31, wherein the orientation layer has a {100} orientation to induce a {100} orientation in the BST film.

33. The thin film structure of Claim 32, wherein the orientation layer is platinum.

34. The thin film structure of Claim 29, wherein the nucleation layer comprises a material selected from the group consisting of Ti, Nb and Mn.

35. The thin film structure of Claim 29, wherein the nucleation layer has a thickness of less than about 50 Å.

36. The thin film structure of Claim 29, wherein the BST film has a thickness of about 150 to 300 Å.

37. A method of forming a BST capacitor structure, comprising:

forming a first electrode material over a substrate assembly;

forming a BST film over the first electrode material, the BST film being formed having a substantially uniform crystal orientation; and

forming a second electrode material over the BST film.

38. The method of Claim 37, further comprising eliminating hillocks from the first electrode material.

39. The method of Claim 37, wherein the first electrode material is formed in a vacuum at a temperature between about 500 and 550°C to reduce stress in the subsequently formed BST film.

40. The method of Claim 37, wherein the BST film is formed at a temperature greater than about 580°C.

41. The method of Claim 37, wherein the BST film is deposited in a vacuum chamber, and the first electrode material and the BST film are formed without a vacuum break in between.

42. A capacitor structure, comprising:

a base layer;

a bottom electrode formed over the base layer;

a BST film formed over the bottom electrode, the BST film having a substantially uniform crystal orientation; and

a top electrode formed over the BST film.

43. The capacitor structure of Claim 42, wherein the BST film comprises between about 50 and 53.5 atomic percent titanium.

44. The capacitor structure of Claim 42, wherein the BST film comprises between about 52 and 53 atomic percent titanium.

45. The capacitor structure of Claim 42, further comprising a nucleation layer between the base layer and the bottom electrode.

46. The capacitor structure of Claim 45, wherein the nucleation layer is made of NiO.

47. The capacitor structure of Claim 46, wherein the bottom electrode is made of platinum.

48. The capacitor structure of Claim 42, further comprising a nucleation layer between the bottom electrode and the BST film.

49. The capacitor structure of Claim 48, wherein the nucleation layer is made of a material selected from the group consisting of Ti, Nb and Mn.

50. The capacitor structure of Claim 42, wherein the base layer comprises polysilicon.

51. The capacitor structure of Claim 42, wherein the bottom electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.

52. The capacitor structure of Claim 42, wherein the top electrode is selected from the group of materials consisting of Pt, Ru, Ir, IrO_x, RuO_x Pt-Rh, Mo and Pd.

53. A method of reducing haze in a BST film, comprising increasing the titanium concentration of the film to about 52 to 53 atomic percent.

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